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## **IN THE ABSTRACT**

An FET device comprises a semiconductor structure with a source island [[,]] and a drain island over is formed on a horizontal surface of a substrate comprising an insulating material. A channel structure formed over the horizontal surface of the substrate, which connects between the drain and the source, with the channel structure comprises comprising a horizontal planar semiconductor channel fin formed above a vertical fin, with the The planar fin and the vertical fins having form a T-shaped cross-section. The bottom of the vertical fin is contact with contacts the horizontal surface of the substrate and the planar fin is in-contact with contacts the top of the vertical fin. A gate dielectric layer covers exposed surfaces of the channel structure. A gate electrode straddles the channel gate dielectric and the channel structure. Then a A sacrificial layer, e.g. such as SiGe, is deposited upon the substrate before forming the vertical fin, which may be either a semiconductor or dielectric material. The planar fin is comprises a semiconductor material such as Si, SiGe or Ge.